

# Table of Contents

## Preface

## Chapter 1: Analysis Properties of Building Materials

<b>Influence of Bottom Ashes from Biomass on Compressive Strength of Concretes</b> M. Ulewicz and J. Jura	3
<b>An Experiment Investigation on Physical and Mechanical Properties of High Strength Concrete with Suitable Admixture</b> B.C. Gayana, M. Shashanka, A.N. Rao and K.R. Chandar	10
<b>Improve Light Weight Concrete Characteristics by Adding Paraffin Wax as Moisture Proof</b> S.A. Raheem, M.A. Saheb, H.H. Moula, B.H. Maula, R.A. Alshreefi and Q.M. Bahnam	16
<b>Effect of Elevated Temperature on Bond Strength of Concrete</b> M.H. Rashid, M.M. Molla and I.M. Taki	26
<b>Bond Behavior of Low-Activated High Aluminate Concrete with Reinforcement under Cyclic Load</b> Y.C. Kan, K.C. Pei and W.L. Hsu	34
<b>Matera Building Stones: Comparison between Bioclastic and Lithoclastic Calcarenes</b> A.E. Bonomo, M. Lezzerini, G. Prosser, A. Munnecke, R. Koch and G. Rizzo	40
<b>Moisture-Density Relationship of Bottom Ash, Lime Stabilized Bangkok Clay as a Potential Pavement Material in Thailand</b> A. Bhurtel and A. Eisazadeh	50
<b>An Experimental Study on Effect of Lime and Geogrid in Pavement Thickness</b> A. Gandhimathi and R. Aravind	57
<b>Influence of Coating on Mechanical Performance of Lap-Spliced Carbon Fiber-Textile Reinforced Mortar (TRM)</b> G.T. Truong, N.H. Dinh, S.H. Park, S.J. Lee, J.Y. Kim and K.K. Choi	64
<b>The Influence of Chemical Additives on Strength of Wood-Cement Composite</b> V. Zaprudnov, V. Sanaev, S. Karpachev, D. Levushkin and G. Gorbacheva	69
<b>Influence of Thickness of Air Gap on Concrete Curing in Formwork with Transparent Cover</b> D.D. Koroteev and M. Kharun	77
<b>Heat Treatment of Self-Compacting High-Strength Concrete in Cast <i>In Situ</i> Construction Using Infrared Rays</b> M. Kharun and D.D. Koroteev	84

## Chapter 2: Mechanical Properties and Behaviour of Structural Elements

<b>Numerical Analysis of Punching Shear Failure of Self-Compacting Fiber Reinforced Concrete (SCFRC) Ribbed Slabs</b> N.H.M. Fodzi and M.H. Mohd Hashim	93
<b>Structural Effect of Using Steel Fiber Reinforcement on the Punching Shear of Self-Compacting Fiber Reinforced Concrete (SCFRC) Ribbed Slabs</b> N.H.M. Fodzi and M.H. Mohd Hashim	99
<b>Influence of the Bauschinger Effect on the Distribution of Residual Stresses in a Thin Hollow Hyperbolic Disc under External Pressure</b> S. Alexandrov, E. Lyamina and Y.R. Jeng	105
<b>Design of Timber Single-Span Beam with Steel Reinforcement</b> F.A. Boytemirov, D.D. Koroteev and M. Kharun	111
<b>Compressive Behaviour of Laminated Neoprene Bridge Bearing Pads under Thermal Aging Condition</b> Y.N. Zhang and J. Xie	118

<b>A Deployable Brace Model with Joint Clearance and Strut Eccentricity in Seismic Design</b> M.H. Hu, P. Yang and D. McCrum	123
<b>Evaluation for RC Column Confined Partially with Externally FRP Wrapping Sheet Using Nonlinear FE Analysis</b> Y.T. Obaidat	129
<b>Strength and Deformability of Reinforced Concrete Beams with Indirect Reinforcement in the Form of Welded Meshes in Compressed Zone</b> A. Tamrazyan and M. Kharun	134
<b>Conical Round Tubes - Preliminary Tests for Use on Lighting Columns</b> R. Kruzel	141
<b>Mechanical Behaviour of Composite Material Based on Mortar/Natural Fibers (Fique "<i>Furcraea andina</i>") Meshes as External Reinforcement of Concrete Beams</b> A. Puentes, J. Soto, G. Díaz-Ramírez and R.C. Hernández	148

### Chapter 3: Polymers and Composites

<b>Study on Dispersion Stability Characteristics of TiO<sub>2</sub> Nanoparticles in PCM for Use in Cold Storage Air-Conditioning</b> X.Y. Li and X.Y. Miao	159
<b>A Study on the Effect of Argon-Oxygen Plasma Treatment on Ultra-Thin Expanded PTFE Membrane</b> N.R. Nishiguchi and P.A.N. de Yro	165
<b>Morphology, Mechanical and Thermal Properties of Poly(Lactic Acid)/Propylene-Ethylene Copolymer/Cellulose Composites</b> S. Wacharawichanant, P. Opasakornwong, R. Poohoi and M. Phankokkruad	172
<b>Improvement of Poly(Lactic Acid) Properties by Using Acrylonitrile-Butadiene Rubber and Polyethylene-g-Maleic Anhydride</b> S. Wacharawichanant, C. Wisuttrakarn, K. Chomphunoi and M. Phankokkruad	178
<b>Anti-Counterfeiting Layer of 2D Colloidal Crystal Based Photonic Material</b> C. Chen, X.H. Wang, Z.Q. Dong, G. Chen, L.X. Han and Z.G. Zhu	185
<b>Preparation and Photocatalytic Properties of Graphene/SrTiO<sub>3</sub> Thin Film Catalyst</b> J. Liu, Y. Li, N. Zhang and D.P. Duan	191

### Chapter 4: Materials Processing Technologies

<b>Comparison of Different FEM Software in Terms of Hot Ultrasonic Assisted Machining Technique</b> M.A. Sofuoğlu, M.C. Kushan and S. Orak	203
<b>Research on Technology of Welding Aluminum Foil in Pressure Vessel Based on Ultrasonic Rolling Welding</b> L.W. Jia, X.L. Li and W.S. Li	208
<b>Investigation of Arc Bubble Affecting the Arc Stability and Improvement of Weld Appearances Using Bubble Constraint Device in Underwater Wet Welding</b> H. Chen, N. Guo, J.C. Feng and G.D. Wang	215
<b>Parametric Study of Underwater Laser Welding on 304 Austenite Stainless Steel</b> Y.L. Fu, N. Guo and J.C. Feng	222
<b>Surface Modification of Steel by Anodic Plasma Electrolytic Boronitriding and Polishing</b> S.A. Kusmanov, V. Belkin and I. Kusmanova	229
<b>Deterioration Characteristics of Overlapping Layers between Al-5Mg Thermal Spray Coating and Heavy-Duty Paint Coating</b> M.Y. Yang, K. Muto, S. Kainuma, J.X. Du and H. Miyata	235
<b>Preparation and Drilling Performance of Orderly Arranged Diamond Bit</b> L. Xu, Y.B. Liu, X.L. Luo, W.K. He and X.W. Deng	241